

# Comment on “Risk factors for intensive care unit readmission after lung transplantation: a retrospective cohort study”

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Dear Editor:

“Risk factors for intensive care unit readmission after lung transplantation: a retrospective cohort study” by Kim et al. [1] provided exceptional information regarding the increased risk of intensive care unit (ICU) readmission after initial ICU discharge during index hospitalization following lung transplantation by illuminating associated factors. In-depth details support the article as a result of the author's remarkable knowledge of their respective disciplines. Sequential Organ Failure Assessment (SOFA) score is independently associated with increased risk of ICU readmission after lung transplant, and as such is a common measure for evaluating clinical condition of critically ill patients and their response to treatment. We concur with the article's conclusion that ICU readmission can be reduced and patient survival can be improved through careful optimization by managing rigorous postsurgical infections. However, we believe that this research should have included a few additional points that could have enhanced the study's value.

First, this article lacks preoperative and postoperative status information for the patients and the respective hospital policies regarding care and assessment of lung transplantation patients. According to a previous study, pulmonary test function, assessment of severity of functional dyspnea through modified Medical Research Council Dyspnea scale, muscle strength measurements using a digital dynamometer, Beck Depression Inventory for evaluating psychological state, short form-36 for evaluating quality of life and a 2-day supervised exercise program should be used to appraise the preoperative status of end-stage lung disease patients [2]. A systematic review revealed that in the early postoperative phase after lung transplantation, there is a considerable reduction in quadriceps muscle weakness due to critical myopathy, impaired skeletal muscle oxidative capacity, and local wound complications due to continuous motion in the thoracic region or old age factors. One study of 700 lung transplant recipients found a 9.2% incidence of neurological complications including stroke and metabolic encephalopathy in the first 2 weeks posttransplantation. Also, a retrospective study revealed the 90-day mortality rate in patients with neurologic complications after lung transplantation to be 15% and only 4% among recipients who did not develop such complications [3].

Moreover, the study's retrospective nature raises several problems due to the possibility of recollection bias and inaccurate patient reporting. Also, a single-center study may be affect-

## Letter to the Editor

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ed by bias due to differences in health, socioeconomic, and environmental variables and constrained statistical analysis. Furthermore, details are required regarding the length of hospital stay after lung transplantation. A study in 2017 showed a notable proportion of patients had a prolonged length of stay after lung transplantation, with donor-, recipient- and procedure-related factors being independent predictors of such results, including lung allocation score, functional status, serum albumin and the need for extracorporeal membrane oxygenation; patients with a prolonged length of stay have higher risk of death 1 or 5 years of lung transplantation [4].

Additionally, along with confounding factors including age and other comorbidities for lung transplantation, details about hospital policies regarding nosocomial infections such as *Pseudomonas aeruginosa*, *Staphylococcus aureus* and *Mycoplasma hominis* causing wound infections and also hospital acquired pathogens like methicillin-resistant *S. aureus* and various bacterial infections causing cholangitis and anastomotic leaks should be stated in this study [3]. Although factors related to nosocomial infections vary across different regions and hospitals, they should still be taken in consideration. Moreover, some information regarding factors associated with discharge frailty following lung transplantation should also have been incorporated into the article. In one study, almost 80% of older adult survivors of a medical ICU admission were frail at discharge. The factors associated with discharge frailty were female sex, pulmonary fibrosis, and acute kidney injury. In addition to this, another study evaluated the association of an intensive outpatient physical therapy program with improvement in frailty and frailty scores among selected frail patients after lung transplantation [5].

## CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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